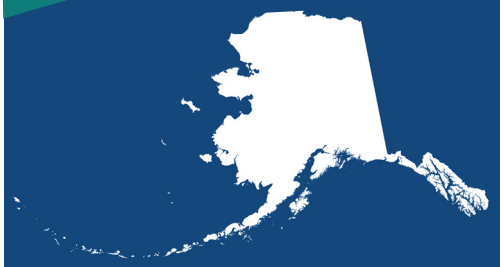
NOAA Fisheries Service
Alaska Fisheries Science Center



Protecting
Conserving
Managing
Marine Resources
in
Alaska

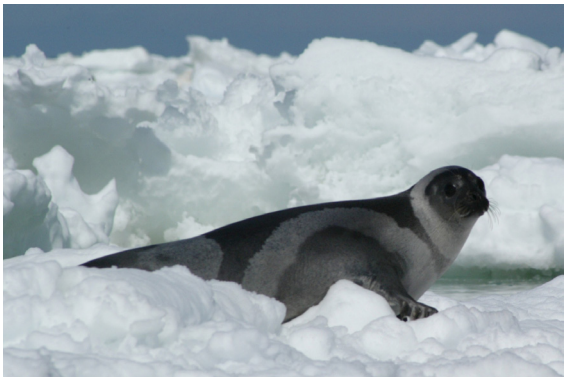
The **Alaska Fisheries Science Center** is a scientific research organization responsible for the development and implementation of NOAA's scientific research on marine resources in Alaska waters. Our research focuses on more than 250 fish and 42 marine mammal stocks off the coasts of the Bering Sea, Gulf of Alaska and Aleutian Islands.

National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

Ribbon Seal

Histriophoca fasciata

Length 1.5 m (5 ft) *
Weight 68 kg (150 lbs)*
Age 20-25 years old**
*average
**maxiumum



Range/Habitat

Ribbon seals live in the North Pacific Ocean and southern parts of the Arctic Ocean. In Alaska waters, they are found north of Bristol Bay, in the Bering Sea, and in the Chukchi and western Beaufort Seas. These seals use sea ice to rest, give birth, and molt. As such, they are sensitive to changes in the environment that affect the timing and extent of sea ice formation and breakup. Ribbon seals are usually found in the loose ice of the frontal zone (sea ice north of the zone where open water meets pack ice and south of consolidated pack ice), and rarely along the coast or on fast ice. From March to May they occupy the Bering Sea ice front and are most abundant in the central and western Bering Sea. Little is known about ribbon seal distribution after they give birth to pups on the ice in April-May. Some animals are thought to migrate north through the Bering Strait into the Chukchi Sea, while others may remain pelagic in the central Bering Sea.

Diet/ Role in Ecosystem

Ribbon seals are deep-water feeders and feed on walleye pollock, Pacific cod, cephalopods and crustaceans.

Reproduction

Female ribbon seals pup in mid-April and wean their pups 3-4 weeks later.

Population

Reliable estimates for the current minimum population size, abundance and trend of the ribbon seals in Alaska are unavailable. However, there are crude estimates available in the historical literature. In the mid-1970s, the worldwide population of ribbon seals was estimated at 240,000 with the Bering Sea population estimated at 90,000-100,000.

Research

In collaboration with researchers associated with the Pacific Institute of Russian Geography and Hubbs Sea World, AFSC scientists traveled to the Kamchatka Peninsula in eastern Russia to capture 10 ribbon seals and instrument them with satellite-linked data recorders (SDRs). These were the first ribbon seals to be captured and instrumented. SDRs can provide data on an animal's location, and on the timing and depths of its dives. The SDR data were used to provide haul-out correction factors for future abundance and distribution sightings surveys, information on habitat selection (i.e., where seals feed and haul out) and seasonal movements, and information on the foraging behavior of these Arctic ice seals.

To estimate the springtime abundances and distributions of ice seals in the Bering Sea, the AFSC conducted surveys in 2006 and 2007 from several research ships in collaboration with the Alaska Native Ice Seal Committee. The most complete observations were from the USCGC HEALY in 2007. For over 2 months, AFSC researchers and Alaska Native participants flew aerial surveys from a helicopter based on the icebreaker throughout the western Bering Sea, while researchers on the NOAA ship OSCAR DYSON captured and instrumented animals with SDRs. Data from the SDRs will be used to calculate haul-out correction factors for the sightings surveys.

Management

The best way to conserve and provide stewardship of marine mammal populations that are critical to the subsistence lifestyle of Alaska Natives is through a full and equal partnership between the federal agency with management authority and the Alaska Natives using that resource. The AFSC is responsible for scientific research and stock assessments of ice seals (bearded, ribbon, ringed and spotted seals) in Alaska, and therefore has expertise and data relevant to many issues of concern to ice seal co-management partners. Recent workshops have resulted in the creation of an ice seal co-management committee consisting solely of representatives of Alaska Native tribes. The AFSC is an active participant in their meetings and is interested in developing a committee where both NMFS and Alaska Natives are equally represented. AFSC staff participates in co-management workshops and meetings to present scientific findings and advice relevant to ice seal ecology and harvest management, and provides financial support for genetic analyses on the stock structure of the four species of ice seals using tissues collected during field research projects.

Issues

Arctic ice-associated seals (bearded, ribbon, ringed, and spotted seals) are a critical component of the Alaska Native subsistence harvest. Ribbon seals are hunted for subsistence purposes; however, there is significant annual variation in harvest numbers. The effect of the subsistence hunt on ribbon seal populations cannot be assessed, because there are no current and reliable population dynamics and ecological data for these seals. Abundance, population discreteness, annual survival and reproductive rates (together with information on food habits, seasonal movements, distribution, and habitat requirements for breeding, foraging, and molting) are all unknown, and are essential to making sound management and conservation decisions. Current knowledge of vital rates in ribbon seals are insufficient to allow for timely detection of changes in population trends. Without reliable estimates of ribbon seal abundance, impacts of human activities on the population cannot be assessed.

Ecological data is particularly important with regard to the effect of global warming and the resulting change in Arctic ice habitat. A reduction or change in ice cover would directly affect the survival of ribbon seals, since they depend on seasonal ice for breeding and haul-out substrate.

Finally, the effect of interactions with commercial fisheries (both direct, such as entanglement in nets, and indirect, such as competition for resources) are not well known. However, given that there is little overlap between the distribution of commercial fisheries and the distribution of ribbon seals, it is possible that commercial fishery impacts may be minor. This may change, however, as fisheries continue to move farther northward.

For more information

Species information

http://www.afsc.noaa.gov/nmml/species/species_ribbon.php
http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-191.pdf

Research at AFSC:

http://www.afsc.noaa.gov/nmml/species/species_ribbon.php#research

Management:

http://www.fakr.noaa.gov/protectedresources/seals/ice.htm

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Questions or Comments?
email: afsc.outreach@noaa.gov